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ABSTRACT

The purpose of this investigation was to determine whether instructional behavior learned during a series of simulated teaching experiences using peers as students would transfer to a setting in which "real" pupils were students. Subjects were 44 undergraduate students in the secondary education program at the University of Texas at Austin. Each teacher presented a series of lessons with peers serving as students for the simulated teaching and one lesson with sixth, seventh, and eighth grade pupils as students. Four lessons were rated and coded--the first lesson, the lesson immediately preceding that using "real" students, the real pupils lesson, and the lesson immediately following that using "real" pupils. Ratings were made of the four teaching dimensions--determining readiness, clarifying objectives, motivating, and evaluating. Results indicated some behavior change during the period of simulated teaching with peers and provided some evidence that instructional behavior acquired during simulated teaching with peers will transfer to a simulated setting using actual pupils. It cannot be concluded that these results would be obtained in other settings, such as the classrooms in which these teachers will eventually be placed. The results suggest that when peers are used as students in simulated teaching, attempts should be made to occasionally use actual pupils in the simulated teaching experience. (MBM)

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TRANSFER OF INSTRUCTIONAL BEHAVIOR AND PERFORMANCE ACQUIRED IN SIMULATED TEACHING

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TRANSFER OF INSTRUCTIONAL BEHAVIOR AND PERFORMANCE ACQUIRED IN SIMULATED TEACHING*

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The purpose of this investigation was to determine whether instructional behavior learned during a series of simulated teaching experiences using peers as students would transfer to a setting in which "real" pupils were students.

Simulated teaching has recently come into more extended use in teacher preparation, both in pre-service and in-service programs. Programs using simulated teaching include the mini-course (3), microteaching (2), and laboratory teaching (5). Although differences exist among these varieties of simulation, their applications in teacher education are similar. Simulated teaching involves the presentation of a lesson in which a teacher practices some instructional behavior or teaching style in a small group, and subsequently receives feedback about aspects of his behavior or about the effects of his instruction. Prior to teaching, a description of the teaching task is given with modeling procedures commonly used; video and audio tape replays of the lessons

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*L. S. Daniel assisted with data analysis.

are sometimes supplied as part of the feedback and peers and/or secondary and elementary school pupils act as students in the lesson.

The purpose of simulated teaching is to teach skills so that they may be applied later to actual classroom settings as well as to provide a behavioral base for principles learned in course-work. However, investigations of the extent to which skills acquired in simulated teaching do transfer to other teaching settings have produced mixed results. Allen & Fortune (1) found evidence for transfer. However Kallenbach and Gall (7), and Brashear (4) found no evidence for transfer to subsequent classroom teaching.

Many factors exist which might interfere with transfer, or at least make it difficult to obtain evidence for its occurrence. The teachers may not acquire the skills sufficiently during the simulated experience; the assessed behaviors may be different from those that were learned; the acquired behaviors may have been extinguished; or they might be unusable in the setting to which transfer is expected.

In many applications of simulated teaching, particularly in courses taken prior to student teaching, peers are used as students. In such a setting the question of transfer is crucial. Might one reasonably expect that instructional behavior acquired during this type of simulation will transfer to other settings? Or are the teachers merely learning behaviors that are useful for teaching peers, but are of limited generalizability in other instructional situations? Obviously, the use of peers as students cannot be justified unless one assumes that the teachers' behaviors will transfer across settings.

In this study, characteristics of teaching performance acquired during simulated teaching with peers were contrasted with the same characteristics measured in lessons using real pupils (from sixth, seventh, and eighth grades). By examining the teachers' behaviors when they taught peers and when they taught actual students, some insight was expected into potential transfer from the former setting

to the latter. Transfer would be indicated by maintaining teaching performance with real pupils; whereas a decrement in performance would suggest some interference with transfer. Considerable decline in performance, that is, at or near entering performance levels, would suggest a lack of transfer.

Procedures

Subjects were 44 undergraduate students in the secondary education program at the University of Texas at Austin. There were seven males and 37 females in the group. Students were enrolled in two courses, educational psychology and curriculum and instruction, which used simulated teaching activities.

As part of their coursework each teacher presented a series of lessons in a teaching laboratory, with peers serving as students for the simulated teaching.

In the laboratory the teachers practiced instructional skills appropriate to selected dimensions of teaching. These dimensions were:

1. Determining readiness--assessing student entering behavior (interests, skills, prior knowledge) that is relevant to the lesson's content.

2. Clarifying objectives--helping students understand the purpose of the lesson, and the kind of behavior that is expected as a result of the lesson.

3. Motivating--providing conditions for eliciting attentive student behavior, and maintaining participation and involvement.

4. Evaluating--determining the extent to which pupils learned from the lesson.

These teaching tasks were used as foci for particular lesson objectives. In a given laboratory session, teachers focussed upon a particular teaching dimension and practiced an instructional skill related to it. In subsequent laboratory sessions, when a

new teaching dimension was introduced, the teacher was instructed to attend not only to skills for that dimension but also to preceding dimensions. Thus the laboratory teacher's acquisition of instructional skills allowed for repeated attention to preceding skills. By the time a teacher was presenting his fifth lesson, he was expected to be attending to each of the teaching dimensions listed above. Verbal and/or written feedback was provided by peers and instructor subsequent to each lesson. This feedback dealt with such things as positive and negative aspects of the lesson, reactions of the students to the lesson and to the teacher, and extent to which the teacher attended appropriately to the criteria, the behavior of teacher and students during the lesson, and alternate ways to extend or modify the strategy used by the teacher.

To determine the extent of transfer of the acquired behaviors, sixth, seventh, and eighth grade pupils were used as students in one of the lessons. All pupils were Negro or Mexican-American and all had volunteered to participate. Eighteen of the laboratory teachers taught these pupils as their seventh laboratory teaching experience, and 24 teachers taught the pupils as their fifth teaching experience. Conditions for the lessons utilizing these pupils were similar to conditions which were used when peers were pupils: lessons were presented in small groups (four to seven students), at the same location, with lesson length ranging from seven to 15 minutes. Each group of pupils served as students in approximately five of the lessons. In general, students from the same grade level were used in forming a group. Lessons were presented on any topic the teacher wished, although lessons drawn from the teachers' subject majors were encouraged and usually followed.

To investigate the plausibility of a transfer effect, four of the lessons presented by each teacher were rated and coded. These lessons were

Initial Lesson: The first simulated lesson. This was used as a measure of entering teaching behaviors. Teachers were not instructed prior to this teach, nor were they asked to attend to any criteria, except to prepare a short lesson to teach to their peers.

Prior Lesson: The lesson immediately preceding the lesson using "real" students. Peers were used as students in the lesson.

Real Pupils Lesson: The lesson in which sixth, seventh, and eighth grade pupils were used as students.

Post Lesson: The lesson immediately subsequent to the lesson using "real" pupils. Peers were used as students in the lesson.

Ratings and codings were made from audio tape recordings of the lessons by two trained coders who were unaware of the purpose of the investigation. Ratings of performance on the four teaching dimensions (Determining readiness, Clarifying objectives, Motivating, Evaluating) that had been the focus of the preceding lessons were obtained using a six-point scale for each dimension. A low rating on the scale indicated that the teacher did not attend to the criteria or did so ineffectively. A high rating meant that the teacher was judged to have attended effectively to the criteria. For example, a low rating on "Evaluating" means that the teacher made no attempt to determine what students were learning during the lesson, or that the procedure used was judged inappropriate or ineffective. A high rating on this dimension indicates that the teacher was judged to have determined what his students learned during the lesson. Similarily, a low rating on the dimension of "Motivating" indicates that the teacher made little or no attempt to arouse or maintain interest (e.g. by problem structuring, positive reinforcement, arousing curiosity, etc.) and/or pupils indicated little or no interest or involvement in the lesson. An estimate of the reliability of the ratings was obtained for the two observers by having each independently rate 20 taped lessons

on each teaching dimension. Inter-rater reliability was estimated by the between observer correlations across the 20 lessons. The reliabilities were for Determining readiness: .67, Clarifying objectives: .65, Motivating: .76, Evaluating: .81. The taped lessons were also coded using Flanders' Interaction Analysis (6), to obtain descriptive measures of behavior. A measure of indirectness I/(I + D) and the amount of student talk (as a percentage of total talk, i.e. teacher + student) were obtained. Inter-observer reliability estimates were, for indirectness: .74; for student talk: .94.

Results

Several comparisons of lesson ratings and descriptive measures were needed to estimate whether teaching skills transferred to the "real" pupils setting. These comparisons, and the information they provide, are described below.

1. Initial Lesson vs. Prior Lesson: to determine what changes in behavior had occurred during simulated teaching using peers only, up to the time when real pupils were used. Unless performance increased between the initial and prior lesson, the question of transfer would have little meaning.

2. Prior Lesson vs. Real Pupils Lesson: to determine whether use of pupils affected performance on the criterion measures. A substantial decrement in performance in the Real Pupils lesson would suggest an inability to transfer the skills learned in the peer setting.

3. Initial Lesson vs. Real Pupils Lesson: to determine whether any transfer effect is plausible. A decrease in performance in the Real Pupils lesson in Comparison 2 may indicate differences in behavior that result from teaching a series of lessons to the same group of peers, so that the teacher's behavior has not actually changed much, but instead the students (peers) are behaving in

the Prior lesson such a way as to maximize the teacher's performance. In Comparison 3, however, the factor of familiarity is not present, since in neither lesson had these pupils previously been taught by the teachers.

4. Real Pupils Lesson vs. Post Lesson: to provide additional information about possible transfer. A decrement in performance in the Real Pupils lesson in Comparison 2, combined with an increment in performance in the Post lesson in this comparison would suggest even more strongly an inability to transfer the skills to another setting.

To summarize, a transfer effect is most plausible if performance during the Real Pupils lesson is maintained at or above performance levels in the Prior lesson. A decrease in performance levels from the Prior lesson to the Real Pupils lesson, combined with no difference between the Initial and Real Pupils lesson would suggest a lack of transfer.

For each of the four ratings and the two descriptive measures, an ANOVA was performed, with repeated measures for the four lessons. Where observations or ratings were missing for a lesson, the degrees of freedom for error were reduced accordingly and the mean for the lesson substituted for the missing score. The number of scores so estimated varied from four to 10 (out of 176) for the six variables. Figure 1 shows means for each lesson on each rating scale, Figure 2 shows means for each lesson on the descriptive measures. Table 1 presents the means, the error variance, and probabilities from the analyses of variance of each measure.

To examine the comparisons of interest, Tukey (a) tests (Winer, 8) were conducted on pairs of means. Table 2 shows the results of these tests.

Figure 1. Mean Ratings of Teaching Behavior on Four Scales for Four Lessons (n=44)

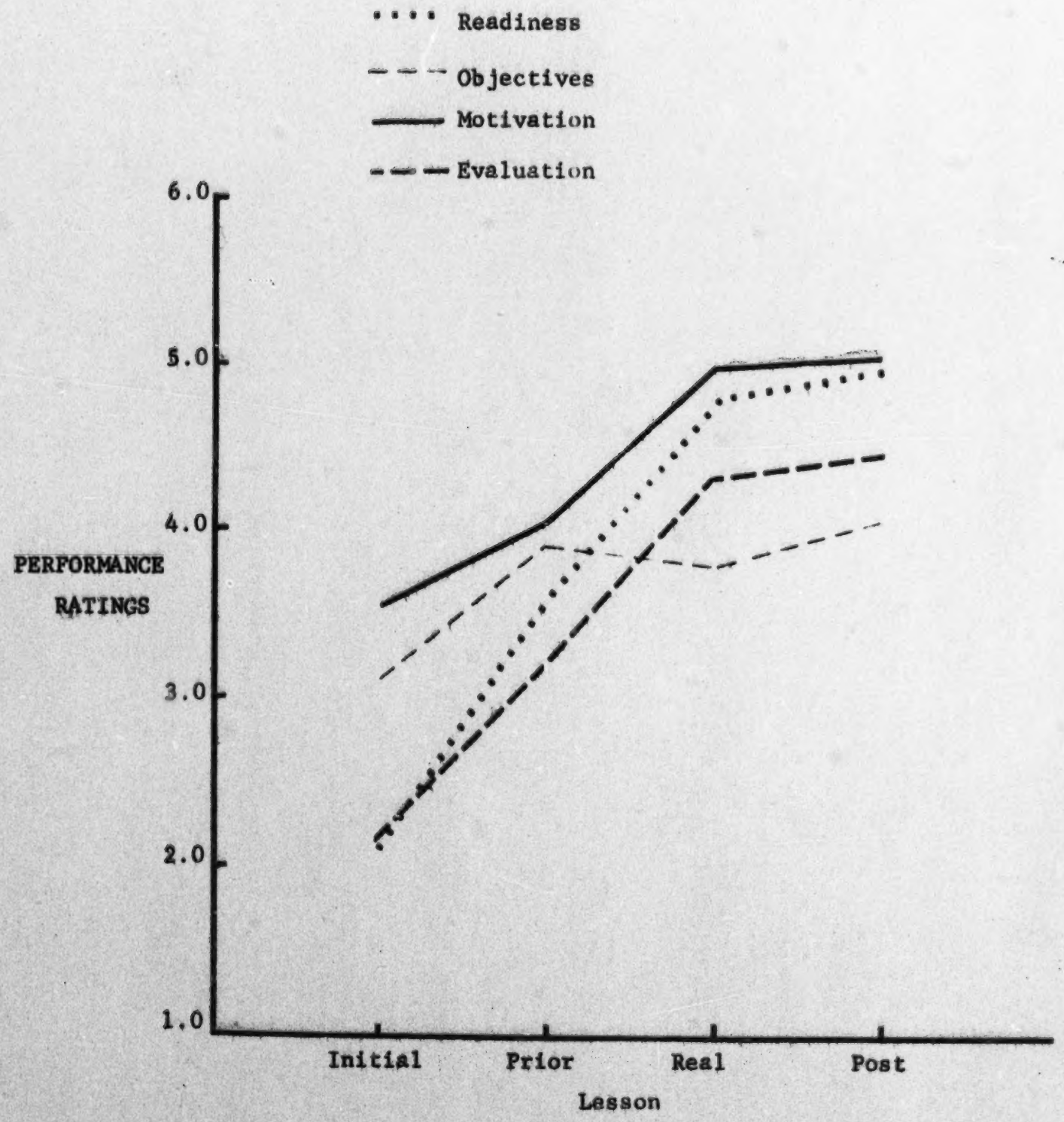

Figure 2. Mean Percentages of Indirectness and Student Talk for Four Lessons (n=44)

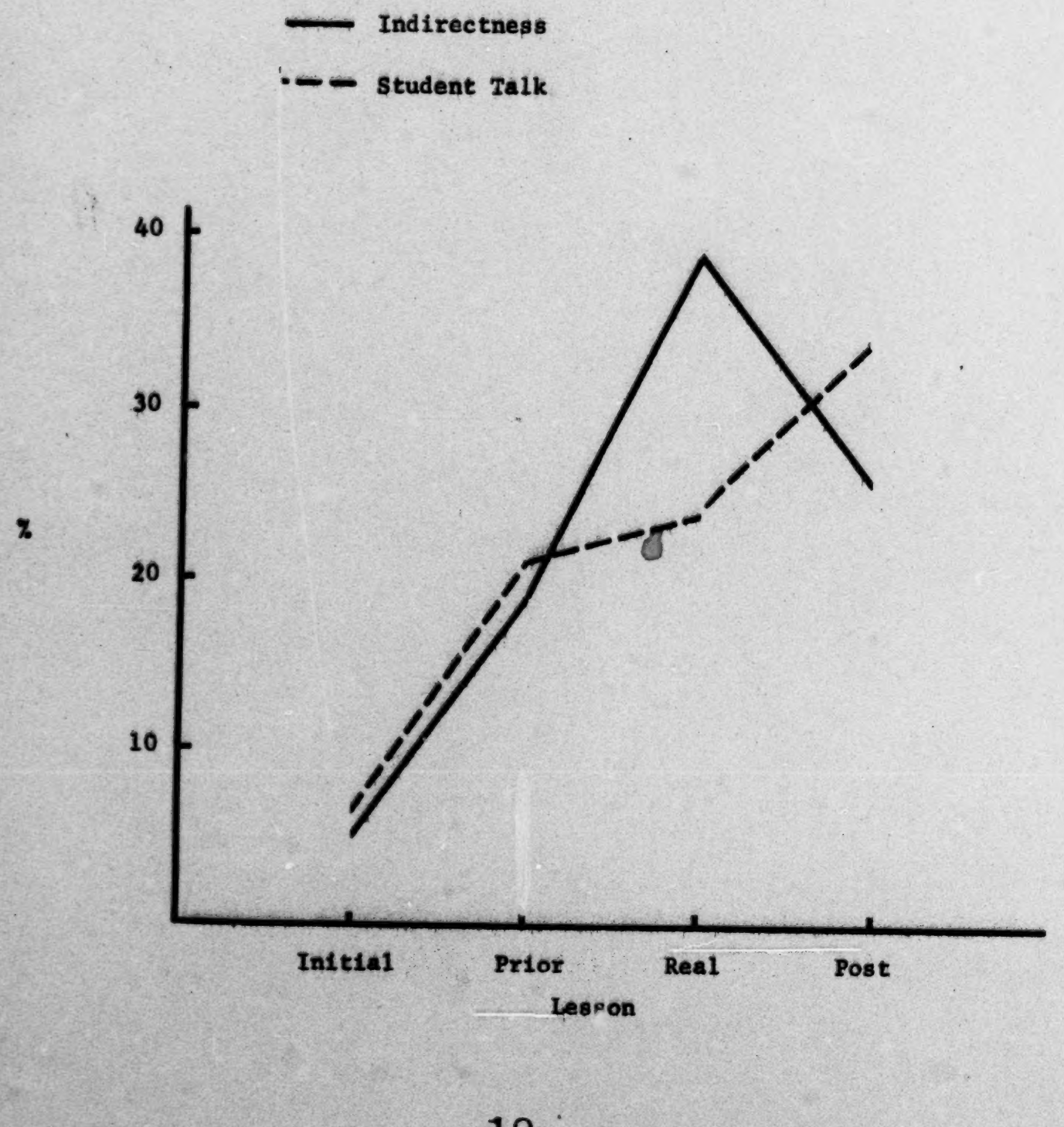

TABLE 1

Means of Ratings and Observations

for Four Lessons, n=44

	Lesson					
Variable	Initial	Prior	Real	Post	S^2 error	p
Indirectness (%)	5.08	18.50	38.17	25.96	188.66	$<.01$
Student talk (%)	6.59	21.64	24.55	34.02	181.63	$<.01$
Readiness	2.09	3.52	4.80	4.98	1.58	$<.01$
Objectives	3.11	3.91	3.80	4.07	1.39	$<.01$
Motivating	3.55	4.02	4.98	5.02	.71	$<.01$
Evaluating	2.11	3.18	4.36	4.45	1.37	$<.01$

NOTE--The lowest rating is 1; the highest rating is 6.

TABLE 2

Comparisons of Pairs of Means for each Variable,

Using Turkey (a) Tests

	Comparison 1 Initial vs. Prior	Comparison 2 Prior vs. Real	Comparison 3 Initial vs. Real	Comparison 4 Real vs. Post
Indirectness	**	**	**	**
Student talk	**	N.S.	**	**
Readiness	**	**	**	N.S.
Objectives	**	N.S.	*	N.S.
Motivating	*	**	**	N.S.
Evaluating	**	**	**	N.S.

* $p<.05$

** $p<.01$

The results show increases on each of the measures from the Initial lesson to the Prior lesson, indicating some behavior change had occurred during the period of simulated teaching with peers. On no measure was there a significant decrease in performance during the Real Pupils lesson, indicating that changes which had occurred in instructional performance and behavior up to that time were maintained in lessons utilizing pupils instead of peers as students. In fact, several variables (Determining readiness, Motivating, Evaluating, and indirect teacher talk) showed an increment when real pupils were used, this increment being maintained in the Post lesson for all variables except indirect teacher talk.

Discussion

The entering instructional behavior of these inexperienced undergraduate teachers was very direct and allowed for minimal student participation. There was generally very little attempt to determine what their students knew about their lesson topic, or for that matter, to determine anything about their students. Similarly, the teachers made few attempts to evaluate what, if anything, students had learned as a result of the lesson. Teachers were somewhat more apt during this initial lesson to clarify their objectives and to provide conditions for eliciting and maintaining student interest, although neither of these average ratings were high.

In the Prior lesson, after four to six simulated teaching sessions, a number of changes in instructional performance and behavior are apparent. Performance on each of the four teaching dimensions improved. The amount of student participation increased, as did the teachers' attempts to obtain it. These changes were maintained or increased when, in the next lesson, real pupils were used. Thus, the results provide evidence for transfer of training from a simulated teaching setting using peers as students to one using real pupils.

It is worth noting that during the Real Pupils lesson there were increments on several of the measures, and that most of these were maintained during the next lesson.

The increment during the Real Pupils lesson for several of the measures was unexpected. Initially, the investigator believed that some evidence for transfer would be obtained; that is, it seemed doubtful that given actual students the teachers would regress entirely to their entering teaching behavior. However, increases in performance were not anticipated during that lesson.

These increases may be explained by two factors. Teaching actual students instead of peers may have had considerable incentive value for the teachers, resulting in better preparation for the lesson and more attention to their instructional behavior. In addition, the setting may have provided conditions for additional learning by the teachers, or allowed them to make better use of skills they had previously learned.

Since most of the increases in performance observed during the Real Pupils lesson were maintained in the Post lesson (using peers), this suggests that the use of real pupils in simulated teaching has a carry-over effect. This may result from greater insight into strategies or behaviors that are likely to be effective, or increased motivation, resulting from a realization that what was being learned in the simulated setting actually would help them function more effectively with real pupils.

The results provide some evidence that instructional behavior acquired during simulated teaching with peers will transfer to a simulated setting using actual pupils as students. The four criterion ratings used were those receiving emphasis in preceding lessons. Whether transfer would occur for other kinds of tasks or behaviors has not been demonstrated, nor is it known whether such results would have been obtained had the simulated teaching with peers used elementary preservice teachers. Neither can it

be concluded that these results would obtain in other settings, such as the classrooms in which these teachers will eventually be placed. The results do however, make more plausible the possibility of transfer to that setting than would have been the case had performance decreased during the Real Pupils lesson. In addition, the results suggest that when peers are the chief source of supply for students in simulated teaching, attempts should be made at least occasionally to introduce actual pupils into the teaching experience.

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